Listing of Claims

The following listing of claims replaces all previous listings or versions thereof:

1. (Original) A recombinant gelonin toxin other than the toxin of SEQ ID NO:1, which toxin comprises a core toxin region defined as amino acid residues 110-210 of SEQ ID NO:1.

2. (Original) The recombinant gelonin toxin of claim 1, comprising at least 10 contiguous amino acid residues of SEQ ID NO:1 in addition to the core toxin region.

3. (Original) The recombinant gelonin toxin of claim 2, comprising at least 20 contiguous amino acid residues of SEQ ID NO:1 in addition to the core toxin region.

4. (Original) The recombinant gelonin toxin of claim 3, comprising at least 30 contiguous amino acid residues of SEQ ID NO:1 in addition to the core toxin region.

5. (Original) The recombinant gelonin toxin of claim 4, comprising at least 50 contiguous amino acid residues of SEQ ID NO:1 in addition to the core toxin region.

6. (Original) The recombinant gelonin toxin of claim 1, wherein at least 10 amino acids of SEQ ID NO:1, other than amino acids from the core toxin region, are absent.

7. (Original) The recombinant gelonin toxin of claim 1, wherein at least 20 amino acids of SEQ ID NO:1, other than amino acids from the core toxin region, are absent.

8. (Original) The recombinant gelonin toxin of claim 1, wherein at least 30 amino acids of SEQ ID NO:1, other than amino acids from the core toxin region, are absent.

9. (Original) The recombinant gelonin toxin of claim 1, wherein at least 5 amino acids of SEQ ID NO:1, other than amino acids from the core toxin region, have been replaced.

10. (Original) The recombinant gelonin toxin of claim 9, wherein at least 10 amino acids of SEQ ID NO:1, other than amino acids from the core toxin region, have been replaced.

11. (Original) The recombinant gelonin toxin of claim 10, wherein at least 20 amino acids of SEQ ID NO:1, other than amino acids from the core toxin region, have been replaced.

12. (Original) A proteinaceous compound comprising a recombinant gelonin toxin of claim 1 and a second polypeptide.

13. (Original) The proteinaceous compound of claim 12, wherein the second polypeptide is conjugated to the recombinant gelonin toxin.

14. (Original) The proteinaceous compound of claim 13, wherein the second polypeptide is conjugated to the recombinant gelonin toxin by a linker.

15. (Original) The proteinaceous compound of claim 12, wherein the second polypeptide and the recombinant gelonin toxin form a fusion protein.

16. (Original) The proteinaceous compound of claim 12, wherein the second polypeptide is an antibody.

17. (Original) The proteinaceous compound of claim 16, wherein the antibody comprises an antigen binding region.

18. (Original) The proteinaceous compound of claim 16, wherein the antibody is directed against a tumor antigen.

19. (Original) The proteinaceous compound of claim 12, wherein the second polypeptide has enzymatic activity.

20. (Original) A modified enzyme produced by a process comprising:

a) identifying one or more antigenic regions in the enzyme using an antibody;

b) removing one or more antigenic regions from the enzyme to form a modified enzyme; and

c) determining that the modified enzyme has enzymatic activity.

21. (Original) The modified enzyme of claim 20, wherein determining comprises assaying the modified enzyme for enzymatic activity.

22. (Original) The modified enzyme of claim 20, further comprising replacing one or more antigenic regions with an amino acid region that is less antigenic than the replaced region or regions.

23. (Original) The modified enzyme of claim 22, wherein the less antigenic region or regions are identified in a protein database search for homologous regions.

24. (Original) The modified enzyme of claim 23, wherein the database is a human protein database.

25. (Original) The modified enzyme of claim 20, wherein the antigenic region is antigenic to a human.

26. (Original) The modified enzyme of claim 20, wherein the antibody is polyclonal.

27. (Original) The modified enzyme of claim 26, wherein the polyclonal antibody is from a human.

28. (Original) The modified enzyme of claim 20, wherein the enzyme is a plant toxin.

29. (Original) The modified enzyme of claim 28, wherein the plant toxin is gelonin.

30. (Original) The modified enzyme of claim 20, further comprising attaching a second polypeptide to the modified enzyme.

31. (Original) The modified enzyme of claim 30, wherein the second polypeptide is conjugated to the modified enzyme.

32. (Original) The modified enzyme of claim 30, wherein the second polypeptide and the modified enzyme form a fusion protein.

33. (Original) The enzyme of claim 30, wherein the second polypeptide is an antibody.

34. (Original) The enzyme of claim 30, wherein the second polypeptide is a toxin.

35. (Original) The enzyme of claim 30, wherein the second polypeptide is a second enzyme.

36. (Original) The enzyme of claim 30, wherein the second polypeptides promotes apoptosis.

37. – 49. (Canceled)

50. (Original) A humanized recombinant gelonin toxin having at least 3 amino acids from one or more of antigenic domains 1, 2, 3, or 4 replaced with amino acids less antigenic in a human than a recombinant gelonin toxin with the replaced amino acids.

51. (Original) The humanized recombinant gelonin toxin of claim 50, wherein at least 3 amino acids from antigenic domain 1 are replaced.

52. (Original) The humanized recombinant gelonin toxin of claim 50, wherein at least 3 amino acids from antigenic domain 2 are replaced.

53. (Original) The humanized recombinant gelonin toxin of claim 50, wherein at least 3 amino acids from antigenic domain 3 are replaced.

54. (Original) The humanized recombinant gelonin toxin of claim 50, wherein at least 3 amino acids from antigenic domain 4 are replaced.

55. (Original) The humanized recombinant gelonin toxin of claim 50, wherein at least 3 amino acids from at least 2 antigenic domains are replaced.

56. (Original) The humanized recombinant gelonin toxin of claim 50, wherein at least 6 amino acids from one or more of antigenic domains 1-4 are replaced.

57. (Original) A recombinant gelonin toxin produced by a process comprising:

a) identifying at least one region in a gelonin toxin that is antigenic in a mammal; and

b) replacing at least a portion of the antigenic region with a region less antigenic in the mammal.

58. (Original) The recombinant gelonin toxin of claim 57, wherein the antigenic region identified in step a) is a recombinant gelonin toxin.

59. (Original) The recombinant gelonin toxin of claim 57, wherein the process further comprises comparing the identified antigenic region with mammalian amino acid sequences, whereby a region less antigenic in the mammal is identified.

60. (Original) The recombinant gelonin toxin of claim 57, wherein the process further comprises identifying a region less antigenic in the mammal.

61. (Original) The recombinant gelonin toxin of claim 60, wherein the mammal is a human.

62. – 88. (Canceled)

89. (Previously presented) A polypeptide comprising gelonin and a heterologous polypeptide.

90. (Previously presented) The polypeptide of claim 89, wherein the heterologous polypeptide is an antibody.

91. (Previously presented) The polypeptide of claim 89, wherein the gelonin has the sequence of SEQ ID NO:1.

92. (Previously presented) The polypeptide of claim 90, wherein the antibody is a single chain antibody.

93. (Previously presented) The polypeptide of claim 92, wherein the single chain antibody is from ZME-018.

94. (Previously presented) The polypeptide of claim 93, wherein the single chain antibody is sFvMEL.

95. (Previously presented) The polypeptide of claim 94, wherein sFvMEL is positioned upstream from gelonin.

96. (Previously presented) The polypeptide of claim 89, further comprising a linker between the gelonin and the antibody.

97. (Previously presented) The polypeptide of claim 96, wherein the linker is an amino acid linker.

98. (Previously presented) The polypeptide of claim 96, wherein the heterologous polypeptide is an amino acid linker.